Appendix 12d

REPORT
to occupy the academic position:

''Professor''	
''Associate Professor''	x
	one of the academic positions indicated shall be marked with the sign "X"

Candidates to occupy the position:

1	Chief Assistant Professor	Dr.	Temenuzhka	Hristova	Radoykova	University of Chemical Technology and Metallurgy - Sofia
№	academic position	scientific degree	name	middle name	last name	workplace

Scientific area:

4	Natural Sciences, Mathematics and Informatics
code	name

Professional area:

4.2	Chemical Sciences
code	name

Scientific specialty:

Analytical Chemistry

The competition has been announced:

64	05.08.2025	Analytical Chemistry	Faculty of Chemical Technology
in SG issue	date	for the needs of the Department	Faculty

The report was written by:

Professor	Dr.	Ivanka	Grigorova	Dakova	Sofia University “St. Kliment Ohridski”, Faculty of Chemistry and Pharmacy
academic position	scientific degree	name	middle name	last name	workplace

1. Report for the candidate:

Chief Assistant Professor	Dr.	Temenuzhka	Hristova	Radoykova
academic position	scientific degree	name	middle name	last name

1.1. Meeting the minimum requirements under the Regulations:

A) The candidate meets the minimum requirements	20 points	x
B) The candidate doesn't meet the minimum requirements	0 points	
		one of the answers given is marked with the sign "X"

It must be filled in if answer B is marked. The publication activity of the candidate is analyzed. The response of the results achieved (quoted) is analyzed.
Chief Assistant Professor Temenuzhka Radoykova, PhD, participates in the competition for the academic position of "Associate Professor" with a total of 28 publications (19 have been published in journals with an impact factor (IF); 4 - with impact rank (Scopus), 3 are in proceedings of scientific conferences, presented in Conference Proceeding in Scopus and Web of Science, and 2 are in Conference Proceeding with ISSN number). She is a co-author of one textbook. The candidate has presented a list of 58 citations of her publications and 31 participations in national and international scientific forums, including both poster and oral presentations. Chief Assist. Prof. Radoykova has participated in 23 research projects, 5 of which were funded by the National Science Fund. The total number of points that Chief Assist. Prof. T. Radoykova collects on all indicators is 507 points. They significantly exceed the minimum required (400 points) for occupying the academic position of "Associate Professor" according to the Law on the Development of the Academic Staff in the Republic of Bulgaria and its Implementing Regulation, as well as according to the Regulations on the Acquisition of Scientific Degrees and the Occupation of Academic Positions at the UCTM.

1.2. Relevance of scientific and / or applied research:

A) The research is relevant. Part of the research is pioneering (no results are known on the topic by other authors)	8 points	
B) Research is relevant. Results from other authors are known for each of the topics and / or applications studied.	6 points	x
C) Most of the research is relevant, but also some results are presented that have no scientific and / or applied value	4 points	

D) The smaller part of the research is relevant	2 points	
E) Research is not relevant	0 points	
		one of the answers given is marked with the sign "X"

The evaluation of the relevance of the research must be substantiated.
The results presented in the publications are in areas that are the subject of intensive research by the global scientific community: preparation and characterization of low-molecular phenolic compounds from lignocellulosic materials and their application as oxidation inhibitors; utilization of biomass waste products and industrial waste products to solve environmental problems. The applications on which the research of Dr. T. Radoykova is focused are very important, which proves the relevance of the topic.

1.3. Objectives of the research:

A) Realistic and of scientific and / or applied interest	8 points	x
B) Realistic, but not of scientific and / or applied interest	4 points	
C) Unattainable (unrealistic)	0 points	
		one of the answers given is marked with the sign "X"

Objectives must be specified. The type of the set objectives must be justified
The objectives of the research presented by Chief Assist. Prof. T. Radoykova have a scientific-applied character. They can be summarized in the following three groups: 1. Preparation and characterization of low-molecular phenolic compounds from lignocellulosic materials with potential application as oxidation inhibitors. 2. Characterization and investigation of the possibility of utilizing biomass waste products (hydrolysis lignocellulosic materials, bark, agricultural waste) as absorbents. 3. Characterization and utilization of waste and secondary industrial products to solve environmental problems. The scientific publications submitted for the competition have been cited 181 times (self-citations excluded, Scopus), demonstrating that the objectives set are both realistic and significant.

1.4. Candidate research contributions:

A) With lasting scientific and / or applied response, they form the basis for new research and applications	20 points	

B) They are of significant scientific and / or applied interest, complete and / or summarize previous research	16 points	x
C) They are of scientific and / or applied interest	12 points	
D) Lack of significant contributions	8 points	
E) Lack of contributions	0 points	
		one of the answers given is marked with the sign "X"

Contributions must be specified. The type of results achieved must be justified.

The scientific contributions can be systematized into the following thematic areas:

1. **Preparation and characterization of low-molecular phenolic compounds from lignocellulosic materials and their application as oxidation inhibitors.** The possibility of obtaining valuable low-molecular phenolic compounds with antioxidant activity from various waste hydrolysed lignocellulosic materials (bark; technical hydrolysed lignin; sulphate lignin; agricultural waste from bioethanol production - straw, corn cobs after various treatments) has been proven. The conditions for obtaining these compounds from various waste biomasses have been optimized. The behavior of the low-molecular phenolic compounds obtained from lignin (2-methoxyphenol, 2,6-dimethoxyphenol, vanillin, 1-(4-hydroxy-3-methoxyphenyl) ethanone and others) has been studied, and it has been demonstrated that they can be used as additives to improve the chemical stability of automotive gasolines. For the first time, the nature of the organic compounds from the liquid phase separated after the isolation of sulphate lignin from black liquor (residual solution from the sulphate digestion of wood) has been studied.

2. **Characterization of waste biomass products (hydrolysis lignocellulosic materials, bark, agricultural waste) and their application as absorbents.** Various instrumental methods and techniques have been used to characterize waste plant materials (IR, EPR and XPS spectroscopy, SEM, low-temperature nitrogen adsorption (Brunauer-Emmett-Teller analysis), TG-DSC analysis and other). It has been demonstrated that various hydrolysis lignocellulosic materials can be used as adsorbents for Mn^{2+}, Cu^{2+}, and Ag^{+}. Their textural parameters have been determined. Using theoretical adsorption models, hypotheses regarding the sorption mechanism have been proposed. A method has been developed for obtaining activated carbon from hydrolytic lignin which possesses excellent textural characteristics and high adsorption capacity for heavy and rare metals. It has been shown that waste lignocellulosic materials modified with silver have antimicrobial properties against pathogenic microorganisms. Various waste lignocellulosic materials have been evaluated as energy raw materials, and it has been demonstrated that they possess high potential for use as fuel.

3. **Characterization and utilization of waste and secondary industrial products to solve important environmental problems**. The possibility of obtaining catalysts from metallurgical slag for waste gas purification has been demonstrated. Mining waste (tailings) and fly ash (from coal-fired power plants) have been characterized (chemical, mineralogical, and granulometric composition, as well as physicochemical parameters of the aqueous suspension) and used as raw materials for the production of geopolymers. Methods for the analysis of these precursors for geopolymers have been validated.

1.5. Participation of the candidate in the achievement of the presented results:

A) The candidate has at least an equal participation in the submitted papers	8 points	
B) The candidate has at least an equal participation in most of the submitted papers	7 points	x
C) The candidate has a secondary participation in most of the submitted papers	4 points	
D) The candidate participation is unnoticeable	0 points	
		one of the answers given is marked with the sign "X"

Critical notes must be provided if one of the items C or D is marked. The review of the materials for the competition, presented by Chief Assist. Prof. T. Radoykova, shows that she has actively participated in their development and preparation. In 71% of the publications, the candidate is the first or second author.

1.6 Pedagogical activity:

A) The candidate has effective and sufficient pedagogical activity at the university. The textbooks issued are modern and useful (they meet the requirements of the Regulations). The work with undergraduate and doctoral students is at a high professional level.	8 points	x
B) The candidate has sufficient pedagogical activity at the university. The textbooks issued satisfy the requirements of the Regulations.	6 points	
C) The pedagogical activity and / or textbooks issued are insufficient (do not meet the requirements of the Regulations)	0 points	
		one of the answers given is marked with the sign "X"

Critical notes must be provided if one of the items B or C is marked.

1.7. Critical notes:

A) Lack of critical notes	8 points	x

B) Critical notes of a technical nature	7 points	
C) Critical notes that would partially improve the results achieved in a small part of the research	5 points	
D) Critical notes that would partially improve the results achieved in most of the research	3 points	
E) Significant critical notes	0 points	
		one of the answers given is marked with the sign "X"

Critical notes must be provided if one of the answers C, D or E is marked.

1.8. Conclusion

A) The evaluation of the candidate's activity is **POSITIVE**	This evaluation is assigned to a total number of at least 50 points	x (75 points)
B) The evaluation of the candidate's activity is **NEGATIVE**	This evaluation is assigned to a total number below 50 points	
		one of the answers given is marked with the sign "X"

To be filled in if requested by the member of the scientific jury
In conclusion, the materials submitted for the competition meet all the requirements of the Law on the Development of the Academic Staff in the Republic of Bulgaria, its implementing regulations, as well as the additional conditions of the University of Chemical Technology and Metallurgy (UCTM) for the academic position of Associate Professor. This gives me grounds to recommend Chief Assistant Professor Dr. Temezhuzhka Hristova Radoykova for election as Associate Professor in the professional field 4.2. Chemical Sciences (Analytical Chemistry).

01.012.2025	The report was written by:	
date	Prof. Ivanka Dakova	signature